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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/825,930 | 04/05/2001 | Mi-Hyun Son | Q63362 | 3817 |

7590 07/16/2003

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EXAMINER

HAM, SEUNGSOOK

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2817

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/825,930

Applicant(s)

SON ET AL.

Examiner

Seungsook Ham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>13</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 5 is objected to because of the following informalities: "said transmission line filter" lacks antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rousseau (FR '216) in view of Hirai (JP '903) and Nishikawa et al. (US '931).

Rousseau (figs. 1-6) discloses a radio-filter comprising: input and output terminals 9, 10, a triple plate filter (i.e., three-plate structure, see abstract) having at

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least one pair of striplines 3-8, the striplines having input and output terminals 9, 10, each of the striplines having a via-hole located at each of its respective ends 13-24 (see also fig. 5), a ground layer 32 connected to the striplines through via-holes; and at least two capacitor compensators 33 or 27 (see also fig. 3, 25-30) of lumped element connected through via-holes located at second ends of striplines to connected the striplines and a ground layer (see fig. 5). It should be noted that Rousseau (fig. 5) also shows the capacitor compensator 27 connected to a closed loop stripline (the capacitor 27 is connected to the ground 32 through an electrode pad conductor directly below the capacitor 27, not numbered) connected to a via-hole 21 (see also equivalent circuit shown in fig. 5, element Co), and a bottom ground layer 32 connected to other via holes 15 (see fig. 5) of the stripline of the stripline filter which are not connected with the capacitor compensator and ground the stripline 5.

Rousseau (see figs. 1 and 5) also shows a capacitor compensator formed of a closed loop stripline containing a via-hole connected with one of the via-holes of the striplines of the strip line filter. Rousseau does not show the top ground layer having second input and output terminal formed of closed loop striplines containing via-holes connected respectively with the via-holes of the first input and output terminals.

However, such triple-plate stripline structure is well known in the art.

Hirai (figs. 1-3 and 12-13) discloses a three-plate stripline filter having input and output terminals formed of a closed loop stripline 8 (see fig. 12) connected to the stripline filter by via-holes 10. Therefore, it would have been obvious to one of ordinary skill in the art to provide second input and output terminals on the top ground layer and

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coupled to the first input and output terminals through via-holes in the device of Rousseau since such design technique is well known and also provide a high degree of designing freedom as taught by Hirai (see abstract).

Moreover, Rousseau does not show a combline structure ("wherein each of said at least two capacitor compensators are arranged at the same end of the respective striplines") instead of interdigitated structure. However, it is well known in the art to provide a stripline filter with a combline or interdigitated structure. Nishikawa et al. discloses a conventional interdigitated type stripline filter (fig. 1) and a combline type stripline filter (fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art provide a combline structure in the modified device of Rousseau instead of interdigitated structure since such design technique is well known in the art as shown by Nishikawa et al. and also it requires only a routine skill in the art.

Regarding claim 5, Rousseau teaches that each capacitor compensator 35-38 is tunable (see abstract). Therefore, it would have been obvious to one of ordinary skill in the art to tune the capacitor compensator such that a length of the stripline electrically meets a half wavelength of a center frequency of the stripline filter to obtain a desired filter frequency.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (703) 308-4090. The examiner can normally be reached on Monday - Thursday from 8:00 A.M. to 5:00 P.M..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal can be reached on (703)308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

A handwritten signature in black ink, appearing to read 'Seungsook Ham', with a horizontal line extending to the right.

Seungsook Ham
Primary Examiner
Art Unit 2817

sh
July 2, 2003